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DECUS NO.	8-391a
TITLE	7 OR 9 TRACK MTA FOR PS/8 WITH TC58/TU20
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SOURCE LANGUAGE	PAL-8

ATTENTION

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/7 OR 9 TRACK MTA FOR PS/8
 /DIRECTORY VERSION, IN ONE PAGE !

/EACH "BLOCK ON TAPE CONSISTS OF 3 RECORDS.
 / 1. A SINGLE WORD RECORD CONTAINING THE BLOCK #
 / 2. 256 OR 128 WORDS OF DATA
 / 3. A 3" GAP AND AN END OF FILE RECORD (EOF=17)

/THERE IS A TAPE FORMATTER PROGRAM WRITTEN IN FOCAL *
 /TO FORMAT A TAPE WITH THE REQUIRED BLOCK STRUCTURE

/NOTE: BECAUSE OF THE WAY THE FORMATTED TAPE IS GENERATED
 /EACH "BLOCK" (GROUP OF 3 RECORDS AS DESCRIBED ABOVE)
 /IS ONLY 6.25 INCHES LONG. THUS A 200' REEL OF TAPE
 /WILL TYPICALLY CONTAIN 400 BLOCKS.

/ASSEMBLY PARAMETERS

0100 EOF=100; FORWARD=60; REVERSE=70; REWIND=10; WRITE=40
 0060
 0070
 0010
 0040
 0020 READ=20; TEST=7776
 7776

/MAG TAPE IOT'S

6701 MTSF=6701; MTCM=6714; MTCR=6711; MTTR=6721; MTAf=6712; MTRC=6724
 6714
 6711
 6721
 6712
 6724
 6716 MTLC=6716; MTRS=6706; MTGO=6722; MCAF=6732
 6706
 6722
 6732

0001 FIELD 1

4000 *4000

IFNDEF UPD <UPD=421>
 /UNIT0, ODD PARITY, 556 BPI, READ COMMAND
 /NOTE: DEFINE UPD=623 IF YOU HAVE A 9-TRACK TAPE UNIT

/ENTRY

14000	0000	MTA,	0	/SINGLE ENTRY ONLY !
14001	6214	RDF		/GET CALLER FIELD NO.
14002	1364	TAD CDFCIF		/FOR EXIT CDF CIF

14003	3313	DCA EXIT	
14004	1377	TAD (REWIND-READ/10 ERROR ATTEMPTS	
14005	3361	DCA ERCNT	
14006	1600	TAD I MTA	
14007	3300	DCA MTFUNC	/FUNCTION
14010	2200	ISZ MTA	
14011	1600	TAD I MTA	
14012	3277	DCA MTADDR	/BUFFER ADDRESS
14013	2200	ISZ MTA	
14014	1600	TAD I MTA	
14015	3363	DCA BLOCK	/STARTING BLOCK NO.
14016	2200	ISZ MTA	
14017	6201	CDF	/PROGRAM ALWAYS RUNS IN 0
14020	1300	TAD MTFUNC	
14021	0372	AND P3700	/SAVE PAGE COUNT
14022	7106	CLL RTL	
14023	7006	RTL	
14024	7006	RTL	/BLOCKS IN ACC, EVEN/ODD IN LINK
14025	7430	SZL	
14026	7001	IAC	/SKIP IF EVEN # OF PAGES
14027	7041	CIA	
14030	3371	DCA BLCNTR	/A WELL-ROUNDED COUNT !
14031	7430	SZL	/SKIP IF EVEN # OF PAGES
14032	1371	TAD BLCNTR	
14033	3370	DCA HALFBLOCK	/WATCH THIS, IT IS SUPER TRICK
14034	5253	JMP NEXTBL	

/"SKIP" DESIGNED TO IGNORE "CRAP IN THE GAP"
 /(A CUMULATIVE "GLITCH" CAUSED BY ERASE HEAD STOPPING
 /AT THE SAME POINT ON TAPE AFTER EACH WRITE)

14035	0000	SKIP,	0	
14036	1376		TAD (FORWARD-READ	
14037	3362		DCA MTTEMP	/STORE IN TEMPORARY
		MTLP,		
14040	1362		TAD MTTEMP	/GET THE DIRECTION WORD
14041	4326		JMS MOVE	
14042	0001		1	/SPACE FORWARD 1 RECORD
14043	0200	P200,	200	/IGNORED
14044	0020	PREAD,	READ	/IGNORED
14045	0100		EOF	/TEST FOR EOF ONLY
14046	5635		JMP I SKIP	/FOUND IT, SO EXIT "SKIP"
14047	5240		JMP MTLP	/NOT YET, KEEP HUNTING

SEARCH.

14050	7710	SPA CLA	/WHERE ARE WE ?
14051	5365	JMP RRW	/PAST IT, SO REWIND
14052	4235	JMS SKIP	/NOT THERE YET, GO TO NEXT BLOCK

NEXTBLOCK.

14053	4326	JMS MOVE	
14054	0001	1	/1 WORD BLOCK NO.

14055	7753	MTCA,	7753	/CURRENT ADDRESS FOR STORAGE
14056	0000	BCNTR,	0	/FIELD 0
14057	7776		TEST	
14060	5365		JMP RRW	/BLOCK RECORD INCORRECT, REWIND
14061	1655	MTLOOP,	TAD I MTCA	/GET THE BLOCK NO.
14062	7141		CIA CLL	
14063	1363		TAD BLOCK	/IS THIS THE ONE WE ARE LOOKING FOR ?
14064	7440		SZA	/SKIP IF BLOCK FOUND
14065	5250		JMP SEARCH	/NO, WE ARE NOT AT IT YET
14066	2370		ISZ HALFBLOCK	/SKIP IF LASTBLOCK AND # OF PAGES
14067	1243		TAD P200	/FULL BLOCK.
14070	1243		TAD P200	/HALF BLOCK
14071	3276		DCA MTADDR-1	
14072	1300		TAD MTFUNC	/GET FUNCTION WORD AGAIN
14073	7710		SPA CLA	/SKIP IF READ IS FUNCTION
14074	1244		TAD PREAD	/NO, IT IS A WRITE FUNCTION
14075	4326		JMS MOVE	
14076	0400	MTCOMM,	400	/WORD COUNT (256 DECIMAL)
14077	0000	MTADDR,	0	/ADDRESS OF DATA
14100	0000	MTFUNC,	0	/FUNCTION WORD
14101	3766		3766	/IGNORE RECORD LENGTH ERROR
14102	5315		JMP MTERR	/TRANSFER BOMBED
14103	1277		TAD MTADDR	
14104	1276		TAD MTADDR-1	/UPDATE DATA ADDRESS.
14105	3277		DCA MTADDR	
14106	4235		JMS SKIP	/SKIP EOF AND "GLITCH"
14107	2363		ISZ BLOCK	/STEP TO NEXT BLOCK IN FILE
14110	2371		ISZ BLCNTR	/SKIP WHEN TRANSFER COMPLETE
14111	5253		JMP NEXTBLOCK	
14112	2200		ISZ MTA	/INDICATE NO ERROR
14113	6203	EXIT,	CDF CIF	
14114	5600		JMP I MTA	/NO RETURN TO CALLER

/MAG TAPE ERROR OCCURED DURING READ/WRITE
 /OF DATA BLOCK.
 /ALLOW 10 TRYS BEFORE ABORTING THE TRY
 /THIS MAY BE THE DIRECTORY!

MTERR,

14115	2361		ISZ ERCNT	/10 TRIES ?
14116	7410		SKP	/NO, KEEP TRYING
14117	5313		JMP EXIT	/YES, ALL IS LOST.
14120	7240		CLA CMA	/SET AC=-1
14121	1370		TAD HALFBLK	/BACK UP HALFBLK, SINCE WE DID AN ISZ
14122	3370		DCA HALFBLK	/RESTORE IT
14123	1375		TAD <10	/SET DIRECTION =BACKWARDS
14124	4235		JMS SKIP	/NOW BACK OVER THE EOF
14125	5252		JMP NEXTBLOCK-1	/NOW APPROACH THE RECORD
				/IN THE STANDARD MANNER TO AVOID
				/PROBLEMS

/MOVE, CALLED BY:

/JMS MOVE /ACC CONTAINS FUNCTION -20 IN BITS 6-8
 /WORDCOUNT /NEGATED INTERNALLY
 /CURRENT ADDRESS/-1 SUBTRACTED INTERNALLY
 /FIELD
 /STATUS BIT PATTERN
 /RETURN IF MASKED STATUS #0
 /RETURN IF MASKED STATUS=0

14126	0000	MOVE,	0	
14127	1374	TAD	(UPD	/IF ACC=0, FORCE A READ
14130	6711	MTCR		/CONTROL READY ?
14131	5330	JMP	.-1	
14132	6716	MTLC		/CLEAR ERRORS AND LOAD COMMAND
14133	7200	CLA		
14134	6721	MTTR		/TRANSPORT READY ?
14135	5334	JMP	.-1	
14136	1726	TAD I MOVE		/WORD COUNT
14137	7041	CIA		
14140	3767	DCA I MTWC		
14141	2326	ISZ MOVE		
14142	7340	STA CLL		
14143	1726	TAD I MOVE		/ADDRESS
14144	3655	DCA I MTCA		
14145	2326	ISZ MOVE		
14146	1726	TAD I MOVE		/FIELD
14147	2326	ISZ MOVE		
14150	6722	MTGO		
14151	6701	MTSF		
14152	5351	JMP	.-1	
14153	6706	MTRS		
14154	0726	AND I MOVE		/MASK
14155	2326	ISZ MOVE		
14156	7650	SNA CLA		/SKIP IF STATUS ! MASK #0
14157	2326	ISZ MOVE		
14160	5726	JMP I MOVE		

/CONSTANTS

14161	0000	ERCNT,	0	
14162	0000	MTTEMP,	0	
14163	0000	BLOCK,	0	/CONTAINS DESIRED BLOCK
14164	6203	CDFCIF,	CDF CIF	

/REWIND SUBROUTINE
RRW,

14165	1377	TAD	(REWIND-READ	
14166	4326	JMS MOVE		
14167	7752	MTWC,	7752	/ARG. IGNORED BY HARDWARE
14170	0000	HALFBL,	0	/DECIDES ABOUT FINAL BLOCK LENGTH
14171	0000	BLCNTR,	0	/COUNTS BLOCKS
14172	3700	P3700,	3700	/BOT CHECK
14173	5253	JMP	NEXTBLOCK	

14174 0421

14175 0010

14176 0040

14177 7770

0000 FIELD 0

\$

BCNTR	4056
BLCNTR	4171
BLOCK	4163
CDFCIF	4164
EOF	0100
ERCNT	4161
EXIT	4113
FORWAR	0060
HALFBL	4170
MCAF	6732
MOVE	4126
MTA	4000
MTADDR	4077
MTAF	6712
MTCA	4055
MTCM	6714
MTCOMM	4076
MTCR	6711
MTERR	4115
MTFUNC	4100
MTGO	6722
MTLC	6716
MTLOOP	4061
MTLP	4040
MTRC	6724
NTRS	6706
MTSF	6701
MTTEMP	4162
MTTR	6721
MTWC	4167
NEXTBL	4053
PREAD	4044
P200	4043
P3700	4172
READ	0020
REVERS	0070
REWIND	0010
RRW	4165
SEARCH	4050
SKIP	4035
TEST	7776
UPD	0421
WRITE	0040